



PRECISE



DYP、 SYP Series
Center Pivot Irrigation System
USER’S MANUAL

Ningbo Weimeng Shengfei Agricultural Machinery Co., Ltd

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Dear User:

It is our honor that you use our product, please carefully read the User's Manual before operating it.

Introduction

DYP-Center Pivot Irrigation System is a kind of huge self-propelled sprinkler machine, which can highly improve the productivity of agriculture and stockbreeding in semiarid and arid climatic zones. It is an indispensable irrigate equipment. It can be used in field that grows vegetable, wheat, corn, sugar cane, even can be used in fruit tree plant and nursery. It is practical, automatic, advanced, energy-saving and water-saving; and it is the result of Key National Scientific and Technological Project.

The superiorities of DYP-Center Pivot Irrigation System are as follow: (1) Larger irrigation area and better effect. It can irrigate huge area at shorter time and lower cost, doesn't need to dig irrigation channel and level land, only need to pump water from river, well, lake and so on. (2) Less labor, one person can control 2~6 sets of irrigation system. Improve productivity. (3) Compared to traditional irrigation method, water use efficiency is higher; it increases crop yields and improves crop quality. (4) Work with other farm tools, it could achieve centralized management, such as unified irrigation, mass seeding, unified fertilization and centralized harvest.

Ningbo Weimeng Shengfei Agricultural Machinery Co., Ltd is a factory which specializes in the scale production of sprinkler system for agricultural use. The irrigation system bases on advanced technology of the industry.

Technical Specification

Model	DYP-142	DYP-188	DYP-206	DYP-268	DYP-330	DYP-368	DYP-392	DYP-422	DYP-452	DYP-480	DYP-516
System length (m)	142	188	206	268	330	368	392	422	452	480	516
Amount of Tower structure	2	3	3	4	5	6	6	7	7	8	8
Maximum Flow Rate (m ³ /h)	56	92	108	153	168	200	212	227	242	256	280
Irrigation area (ha.)	6.3	11.1	13.31	22.5	34.2	42.5	48.22	55.89	64.15	72.35	83.6
Max. Rotation Rate (h/r)	4.8	6.5	7.3	9.73	12.1	13.6	14.6	15.8	17	18	19.4
Span length (m)	50m, 56m, 62m										
Over hang length (m)	6~25										
End pressure (M Pa)	0.15										
Distribution uniformity Coefficient.	≥85%										
Rainfall (mm/h)	5.21~52.1										
Gear Motor Power (k w)	0.75, 1.1										
Tire Size	11.2-28, 14.9—24										
Max. Climbing Grade	20%										
Transmission ratio of Gear reducer	40:1										
Transmission ratio of Worm reducer	52:1										
Gross weight per Span (kg)	2300, 2790, 3290										

Notice: 1.It is a partial Model in the table. The max. flow rate could be adjusted.

2. The models are from DYP-65 to DYP-558, the system length could be chosen from 65m to 558m, which depends on the area you are intended to irrigate.

□ Operation Principle

1. Model

DYP—□

D—"Electric", Y—"Circle"; P—"Irrigation system"; □—system length

2. Principle

The DYP-Center Pivot Irrigation System consists of a continuously moving, horizontal rotating lateral that is supported by towers and anchored at a fixed pivot point at the center of field. Its main parts are center pivot, trusses, wheeled towers, over hang and electric control system. The trusses mounted on the wheeled towers, every two trusses connect with flexible connector, in order to climb sloping field smoothly. There is a waterproof motor (0.75 ~ 1.1 kw), which mounted on the wheeled tower, and drive the wheels of the tower through a gear motor. There also has an electric synchronous control system, which decides the circuit of each waterproof motor state, when you turn the Control Box on, the waterproof motor that closed to the "over hang" starts running, and the wheels of the following tower stop, when the following two trusses form a 1 degree angle, the following motor drive the wheels of the next tower, so the last tower sets the other towers into motion one after the other by the system of electric synchronizer, each span therefore advances in short bursts starting with the next to last tower and progressing inward towards the pivot point, therefore it achieves sprinkling as a circle. See illustration 1.

Sprinkler consists of truss, flexible tube and nozzles. The trusses connect with ball-twist, each end of the truss placed on the tower. The pipes connect with split couplers. The flexible tubes are mounted on the pipeline at equal distance. When water was pump into pipeline under a certain pressure, it sprinkles from the nozzles by itself to finish irrigation function.

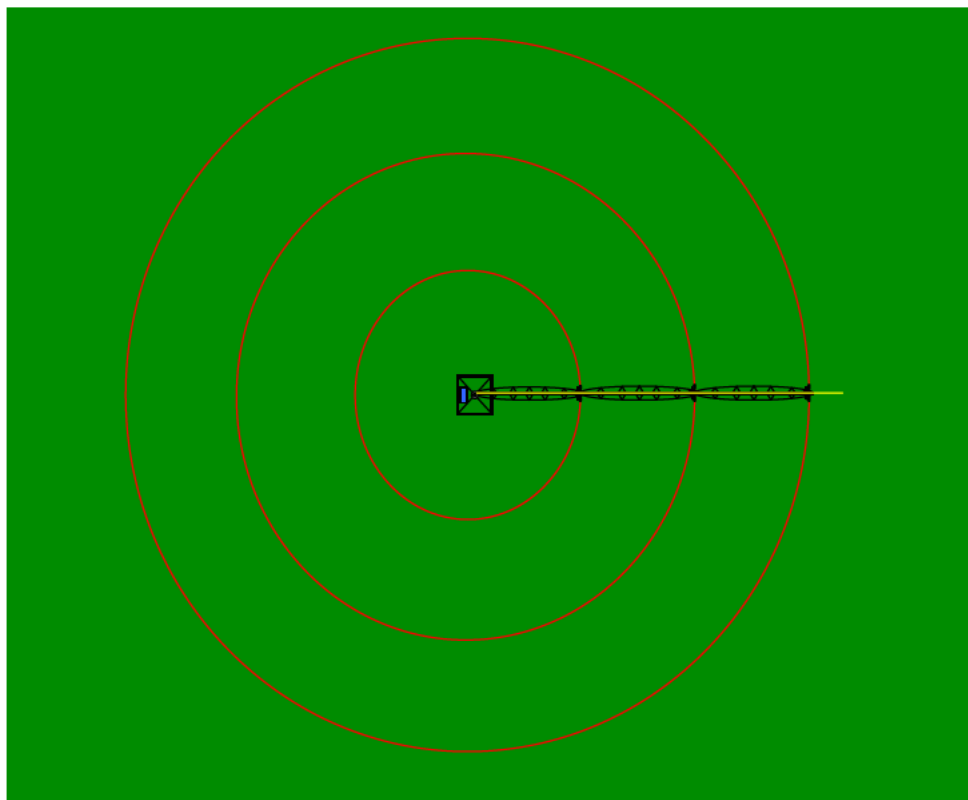


Illustration 1 Principle of Center Pivot Irrigation System

3. Construction

The DYP-Center Pivot Irrigation System consists of center pivot, truss, wheeled tower, over hang, drive system, electric control system, and pump system. See Illustration 2

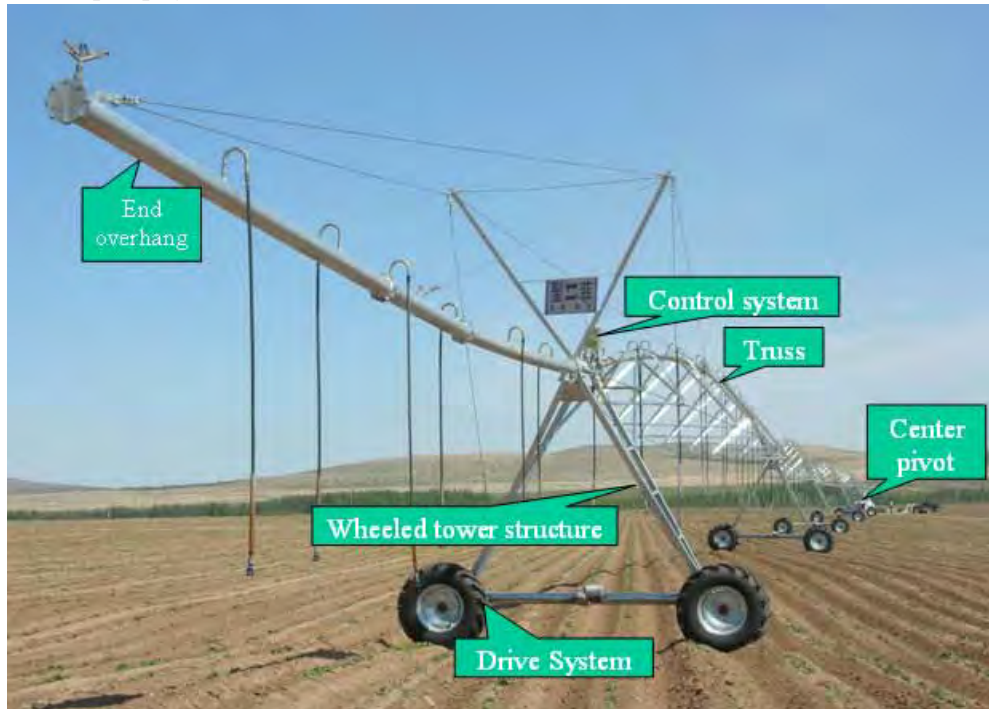


Illustration 2

(1) Center pivot

Center pivot consists of hot-dip galvanized angle steel legs and heavy-duty cross members that form sturdy right pyramid foundation for even longest system, a siphon and a pivot pipe connect by a rotary sleeve at the middle of the center pivot, the siphon could revolve in the sleeve, and the pivot pipe is fixed with the rotary sleeve via a split coupler. The right pyramid steelwork is fixed on a concrete base by four bolts. The control box is mounted on the steelwork. The collector ring and pilot lamp are mounted on the siphon.

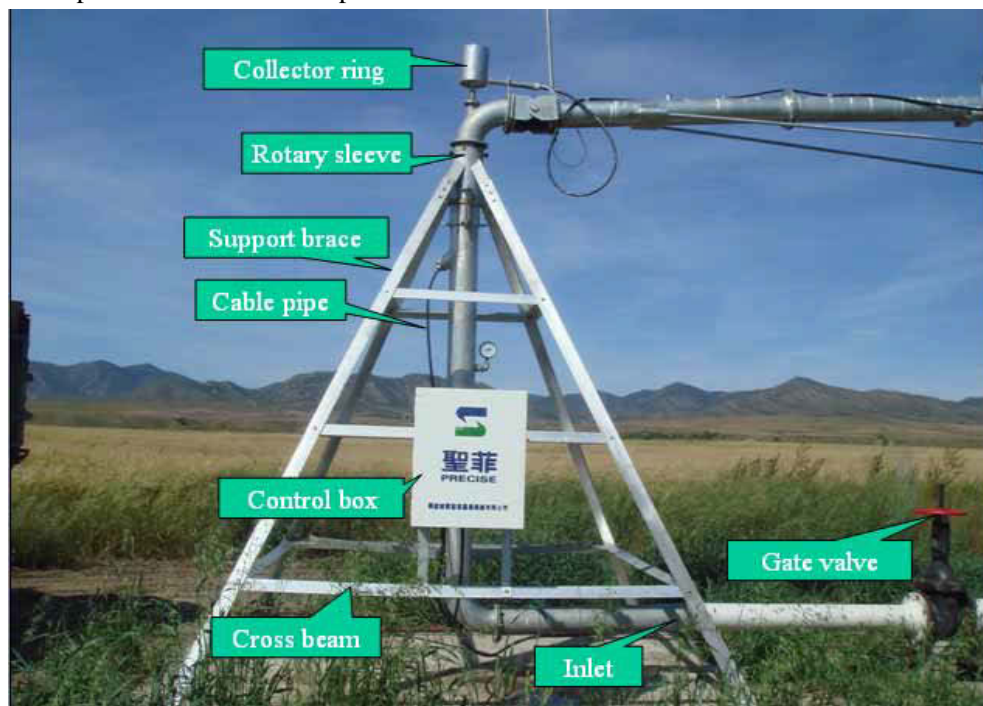


Illustration 3 Center Pivot

(2) Truss

Truss consists of water pipe, “V-Jack” and truss rod. The trusses connect with Ball-Twist, and water pipes connect with split coupler and flange, therefore the lateral could run smoothly on the uneven terrain. There are three kinds of trusses, 50m/span, 56m/span and 60m/span. See illustration 4

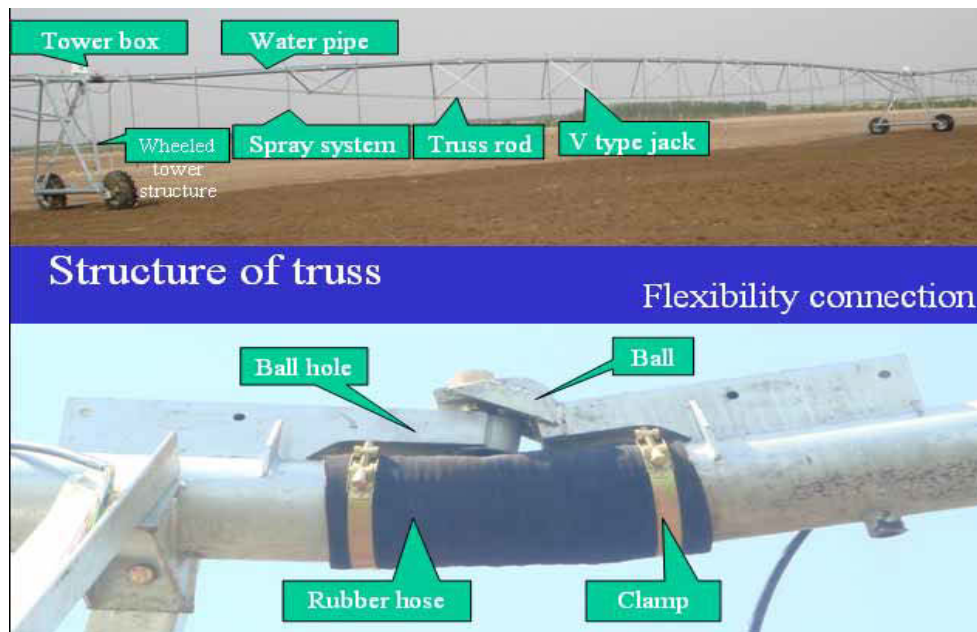


Illustration 4 Lateral structure

The 50m/span consist of 8 PCS water pipes, 56m/span consist of 9 water pipes, the 62m/span consist of 10PCS water pipes, Joint type of pipes is flange joint, and a gasket ring be sandwiched between two flanges. The V-Jack is a triquetrous steelwork there are short, middle, long, longer...types. See illustration 5.



Illustration 5 V-Jack

(3) Wheeled tower structure

Wheeled tower structure consists of horizontal beam, steelwork, Gearing and Wheels. The opposite wheels are mated to a heavy-duty droved beam, and a worm reducer mounted on the bearing. See illustration 6. The connection between top of support brace and water pipe are rigid fastening, one long pipe rod fix on support brace and V-Jack, See illustration 7. Gearing consists of gear reducer, transmission shaft, universal-joint, and worm reducer.

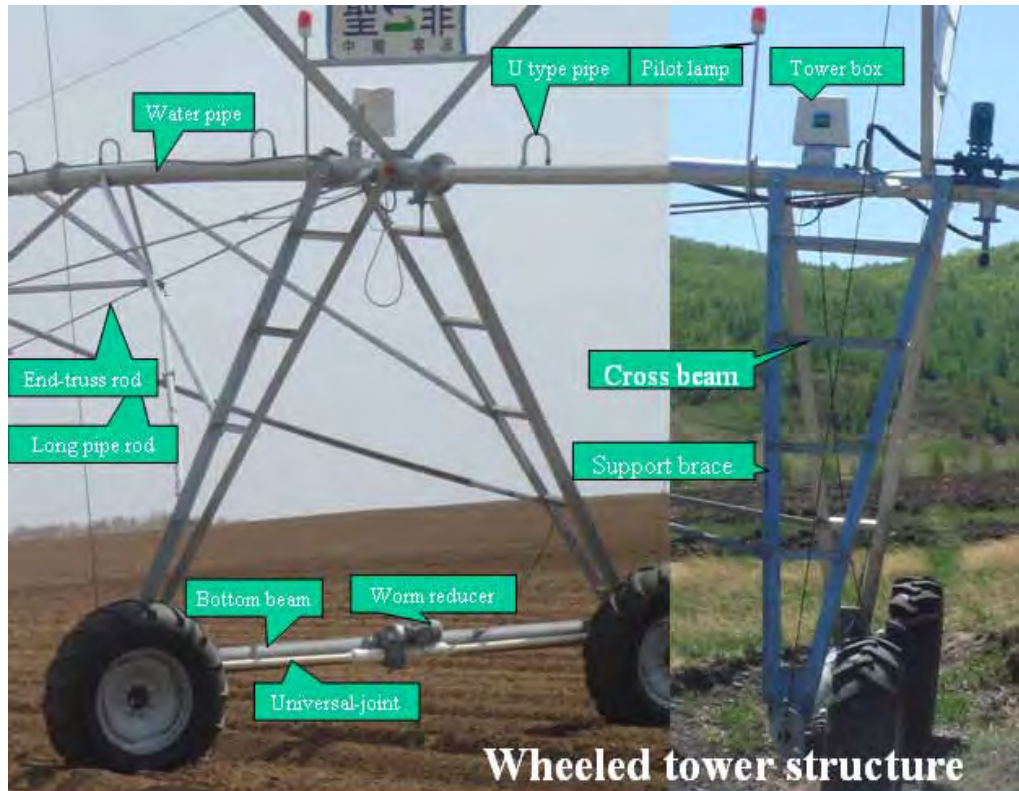


Illustration 6 Wheel Tower Structure

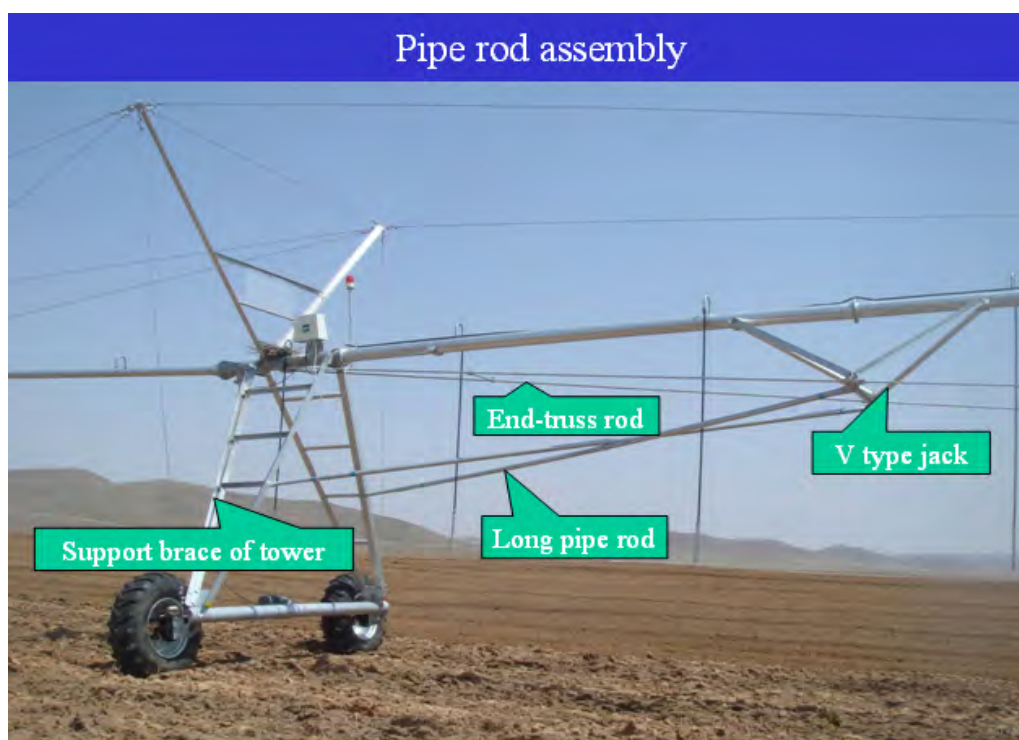


Illustration 7 Pipe & Truss Rod assembly

(4) Over hang

The over hang is 6~25m in length, and the flange-mounted water pipes is 114mm, which are strengthened by a bracket and five wire ropes. There is one drain valve on over hang; the end gun (Optional) could increase irrigated area, See illustration 8.

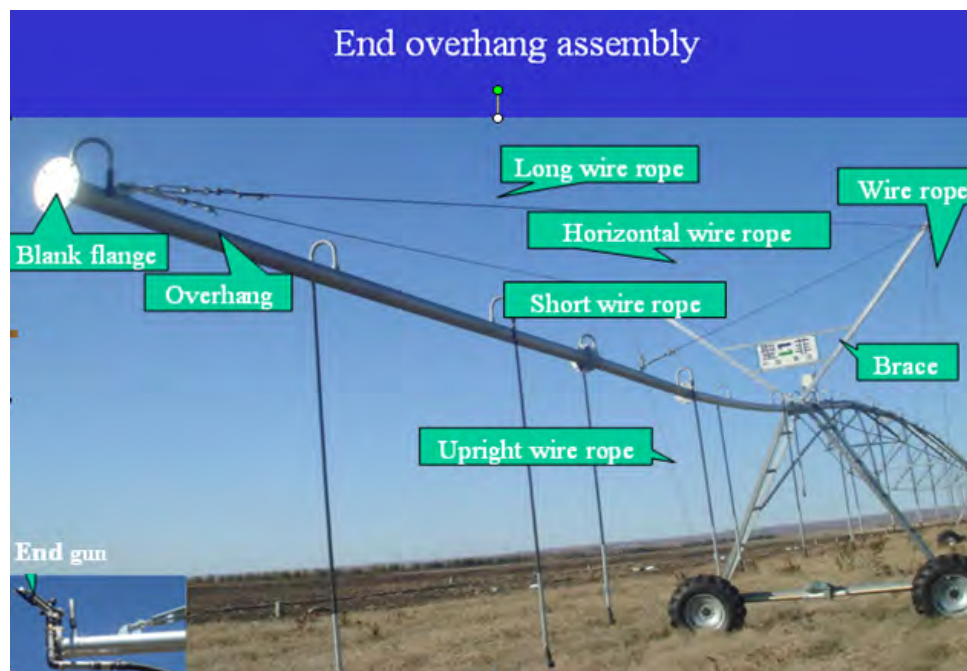
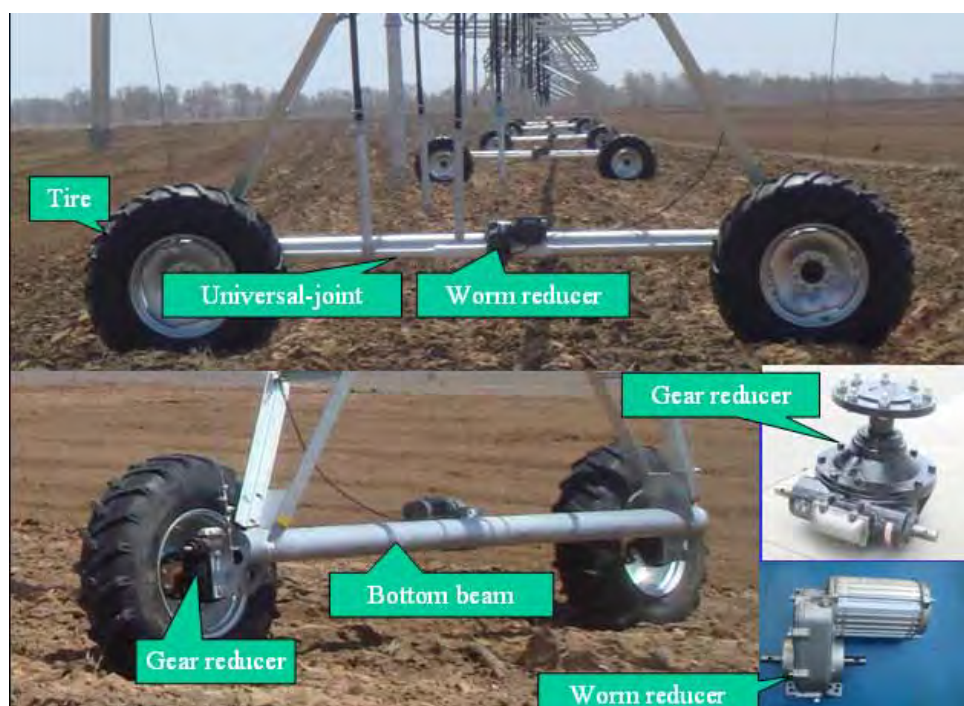


Illustration 8 Over Hang

(5) Wheel parts and drive parts

Wheel parts include tyre, hub of a wheel, rim, shaft parts, the opposite wheels are mated to a heavy-duty droved beam, and a worm reducer mounted on the bearing, and the Standard tyre is 14.9-24.

Drive parts include worm reducer, transmit shaft, Universal-joint, Gear reducer, the gear reducer connected with worm reducer by the transmit shaft. See Illustration 9



See Illustration 9 Wheel parts and drive parts

The main function of the gear reducer is reducing speed, increasing torque and transmitting power, the output worm shaft connected with the universal-joint, and another shaft connected with wheel. The worm reducer mounted on the base beam. See illustration 10.



See Illustration 10 Worm reducer

(6) Electric control system

Electric control system consists of control box, collector ring, tower controller and cable.

This electric control system can control the run directions of DYP-Center Pivot Irrigation System, the run directions are clockwise, reverse, and its run models are periodic run and nonstop run. The rainfall is adjusted by the run speeds. There is a position stop switch on center pivot, when the irrigation system arrives at a preset place, it stops by itself. The electric control system has safety protection, overload protection and unsteady voltage protection functions. When the angle of tow connected trusses exceeds the presetting angle, the system stops working by itself; When any gear motor reducer overloads, the system stop working; when the wheels of end truss skid, or stop for a long time, the system stops working itself; when the water pressure exceeds common pressure, the system stop working themselves. Also the electric control system can constantly monitor the voltage, electric current, temperature and the poison of fault truss and show on the screen of Malfunction display.

Control box

Control box are mounted on the center pivot, and all the wires are in order through the Collector ring to each tower controller and other wiring parts. The control box is the main parts which controls the electric control system. It has controlling, protecting and monitoring function. There is a time controller which can adjust the ratio of run time and stop time per minute (one minute is one circle) to sprinkle the right rainfall. See Illustration 11



See Illustration 11 Control box

Collector ring

Collector ring comprising a non-electrically conductive, non-rotatable slip ring base having a plurality of slip rings mounted thereon with the slip rings decreasing in diameter from the lower end of the base to the upper end of the base. Electrical wires are secured to the slip rings and there from extend for connection to a source of power. It can avoid the wires to twist together. See illustration 12

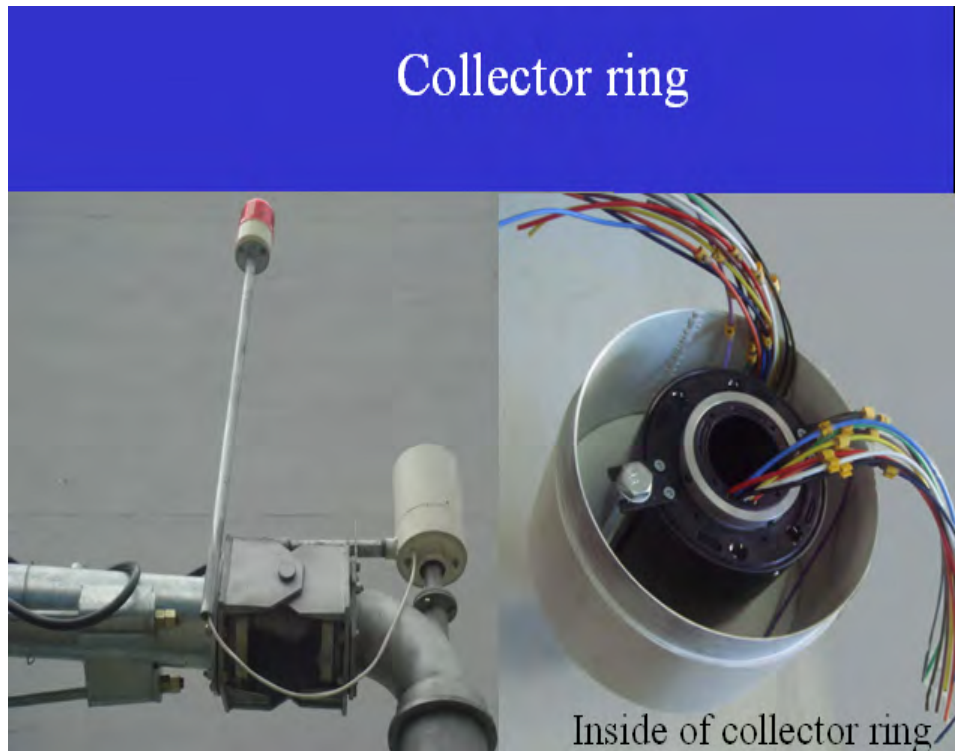


Illustration 12 Collector Ring

Tower Controller

The configuration of Mid-tower controllers; See illustration 11

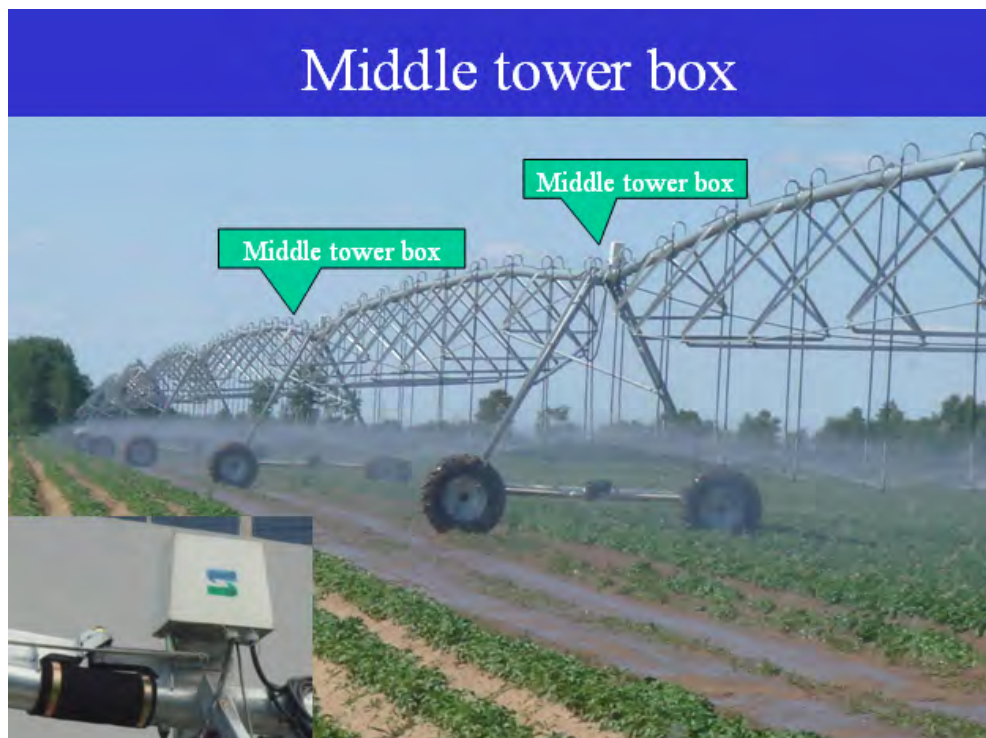


Illustration 13 Mid-tower Controller

The inner parts are a micro-switch, an adjustable cam, a contactor, a relay and a set of malfunction signal feedback equipment.

The contactor is to start or stop electric motor mounted on the tower via the action of the micro-switch and the adjustable cam. If the circuit of tower controller overloads, the relay would cut off the power of the motor, to avoid overload. The malfunction signal feedback equipment connects with the micro-switch via the open contacts (pole), once there is a malfunction, the “open contacts” close, the malfunction signal feeds back to the control box and the “malfunction display” will display the “number” of tower which has malfunction.

The configuration of the sub-end tower controller has a time relay besides the parts of end-tower controller, this time relay controls the heat relay and the contactor of end tower controller; see illustration 14

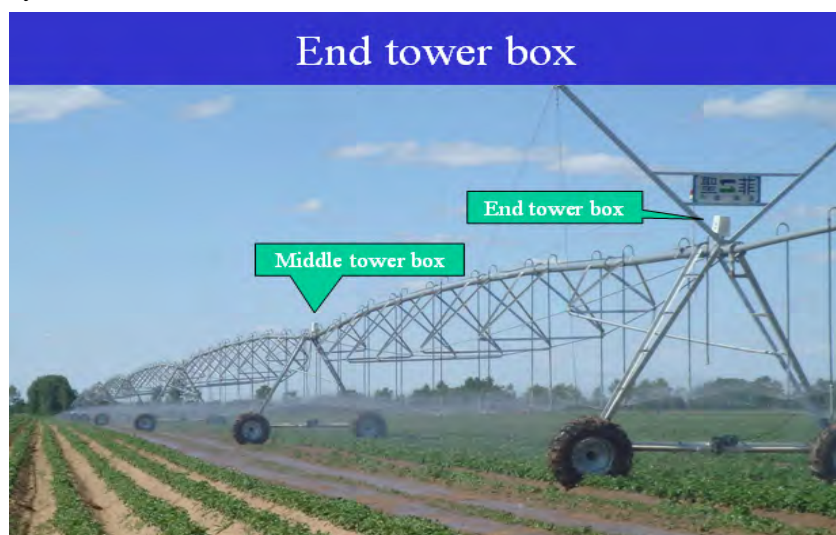


Illustration 14 End-tower Controller

When the end tower skids on mud or is blocked, it will exceed the preset time of time relay, the “closed contacts” open, the system stops working.

Thermal relays of all tower controllers are adjusted to 2.5A at factory, to play over-load protection. There is a manual switch which drives the truss back to proper position. Once any truss is in troubles for some reason, it could cause the thermal relay to play over-load protection by cutting off the circuit of the gear motor, so this truss stops, after a while, safety switch cuts off the circuit of the system, and the system stops by itself. After eliminating sources of trouble, turn the manual switch on, and reversely run this system on one line direction, then make the system run normally again.

The micro-switch of tower controller can achieve function of safety protection and run. See illustration 15

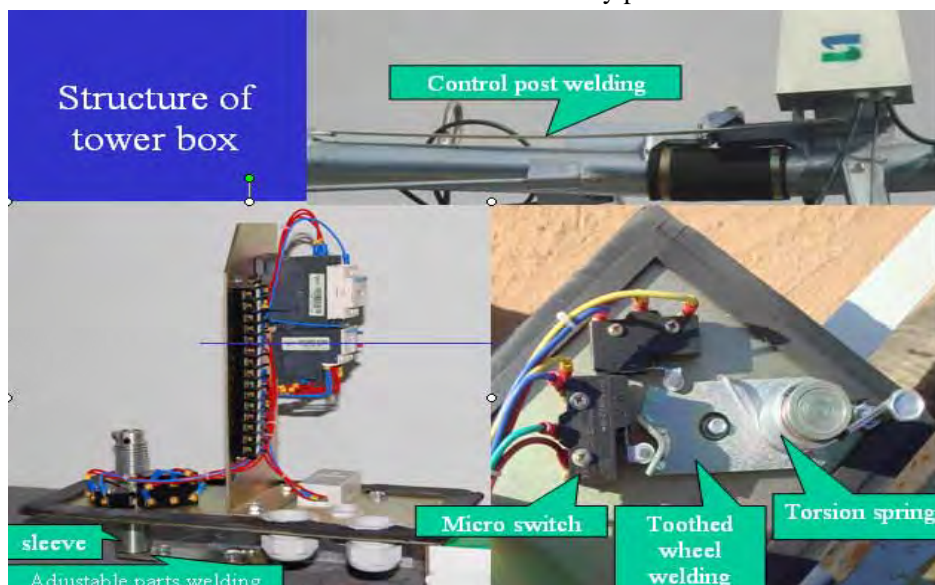


Illustration 15 Control Parts of Tower Controller

Pilot Lamp

Pilot lamp is a small electric lamp which is used to indicate that electric circuit is energized, the over hang and the center pivot are mounted one pilot lamp separately. See illustration 14.

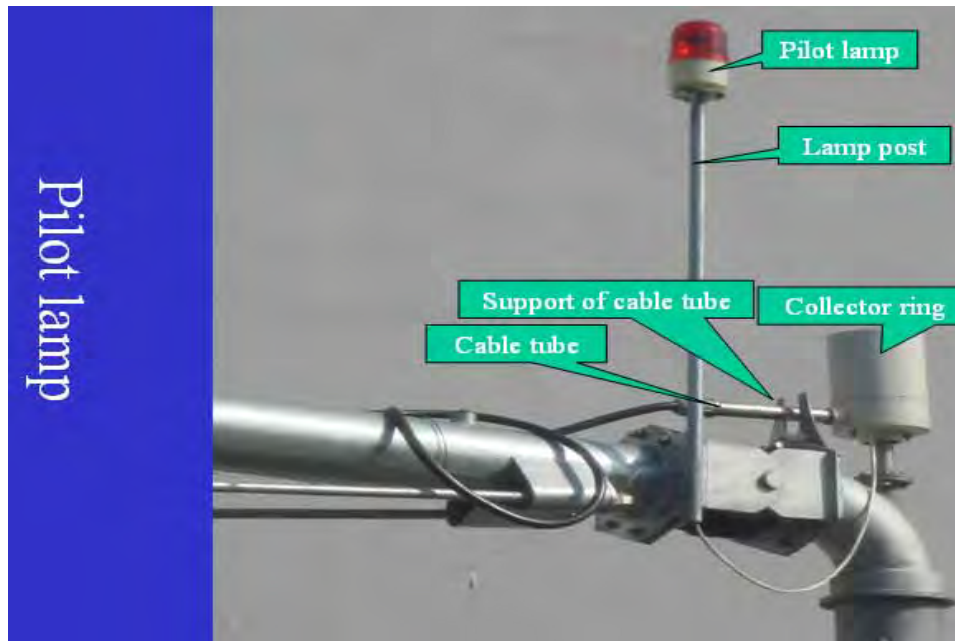


Illustration 16 Pilot Lamp

Run Process of Electric Control system

Power supply is three phase four wire 380V+10%. The system adopts over-load protection, open-phase protection, surge protection, locked current protection and malfunction display functions. Turn on power switch “QF”, the control panel of the control box indicates voltage, change to “SV1” and “SV2”. It could check whether three phase power is at normal state. The ammeter indicates the electric current during work state.

a. Runtime

The run cycle of the end tower controller is one minute; adjust the time relay “KT2” to control the runtime of per minute (for example: In one minute, 50 seconds are set run time, the rest 10 seconds are stop time) when close the switch “k”, the end truss drive the irrigation system nonstop run at every minute.

b. Run Direction

The run directions are controlled by the switch “SAC”, when you confirm the run time and the run direction, press start button “SF”, the relay of secondary circuit “KA” pick-up, the indicator lamp works, and the irrigation system start work.

c. Safety Protection

Safety protection device consists of a thermal relay “KH1-9” and a micro-switch “SQ1-8”. If there is a malfunction (such as exceed the preset angle, over current, missing phase), the secondary circuit would be cut off automatically. The gear motor adopts embedded thermal protection. All the exposed metals are connected to the ground, with less 1Ω resistance.

d. Malfunction Display

Malfunction display device consists of a thermal relay “KH1-9” and a micro-switch “SQ17-24”. If any truss has malfunction, the “number” signal feeds back to the control panel via the secondary circuit. After eliminating sources of trouble, turn the manual switch on.

Sprinkler Parts

Nozzles: The nozzles could be chosen from the Nelson Nozzles (Made in USA) and HuaYu Nozzles (Made in China)

End-Gun: It is an optional part, which could increase irrigation area.

Installation

1, Preparation Work before Installation

- (1) A mobile crane with a lifting power over 3 tons
- (2) Put all the parts in sequence of the lateral.
- (3) Special tools of installation

2, Installation

(1) Assemble Center Pivot

Put a V-shaped gasket in the pivot Pipe. Insert the cable-tube into the pivot pipe. Fix the rotary sleeve, siphon and the pivot pipe with collar clamps and bolts, and reinforce the pivot pipe by two support bars, put out the cable-tube from pivot pipe, and fix the cable-tube with compression nuts.

(2) Assemble Truss

Arrange 8~10 water pipes in a line, place the end of the joint pipe with flange near the center pivot, the other end of joint pipe with a knuckle ball at the opposite direction, Lay water pipes with small outlet upward and pad them with wood. Clean the flange and place waterproof mat on the flange, and fasten the bolts. Install the horizontal stay bar and mid-truss rod, and install four end-truss rods at ends of lateral, each truss rod with two nuts (M22), and each exposed 20 mm screw thread. Bolt up the stay bay of the V-Jack, but do not fasten the bolts. Assemble the sprinkler with U-tubes, PE hoses and nozzles. Please refer to the configuration of nozzle sheet. Draught the cable along the top of water pipe, and clamp the cable with wire clamps at every 2 m interval, cable crosses through the U-tubes, not on one side of the water pipes. Fasten all bolts and install automatic vent valve. Fasten the pipe through the tubular truss rod (60×3500) with $M16 \times 400$ bolts connecting to the bracket of the truss, don't fasten bolts. One span has finished.

Note: During the installation of nozzles, it needs two persons' cooperation; one cleans up the thread of nuts, the other checks the Nozzles configuration in accordance with the sheet.

(3) Assemble tower structure

Crane the end of the truss which has ball-hole to a certain height; connect four support poles to the plate bracket of the water pipe, the opposite ends of four support poles to two ends of the base beam. Then, install framework of the worm reducer and wheels, don't fasten bolts. Connect all beams with the support poles; reinforce the tower structure with two tubular truss rods. After the all parts are connected, fasten all bolts, and slowly down the tower structure.

(4) Assemble over hang

Connect over hang with end-truss, over hang and end truss should assemble with Logo panel, support bar and steel wire at the same time.

Note: the over hang should be 300-500 mm higher than the horizontal line of lateral. Install U-tube, PE hose, pressure regulator, nozzles and end gun in accordance with the nozzle configuration table.

(5) Assemble Electric Control System

Control box is mounted on the cross member of the center pivot. Collector ring are linked by the cable which pass through the siphon, the tower controller is installed in the corresponding truss near the flexible joint position, and control bar is connected with the cam, the other end is connected with the truss. The motor reducer fixed at the middle of base beam.

Requirements of electric control system: The resistance of grounding conductor should be no more than $4\ \Omega$.

Central control box, the cover of tower controller must be connected with the grounding line. The insulation resistance of power lines and wire of electric control system should not be less than $2\ M\Omega$. Control bar which connects the tower controller should be flexible, the relative position of the cam and micro-switches has been properly adjusted, if there is no special requirement, don't adjust them to avoid the irrigation system failure. The heat relay inside tower controller has already been adjusted to 2.5 A in our factory, don't random adjust it in the installation and operation of the irrigation system, The connection of carbon brush and slip ring must be good, there is sufficient insulation function between the slip rings. Control box, collecting ring, and tower controller, all wire terminals should be solid and tidy. Integral assembly: Put collar clamps around water pipe, insert flexible coupler in the water pipe, then put knuckle ball in to hole-ball slowly, and fasten the collar clamps and the flange, After assembling each tower structure, lift up the base beam of former tower structure, turn the wheels to it working position, then fix gear motor to the beam, assemble transmission shaft, universal-joint and plastic pipe, fix the plastic pipe on base beam with wire clamps.

. Adjustment and Operation

1. Inspection Work before Operation

Check the bolt fastening situation of all parts.

Check whether there is missing parts or wrong installation.

Check whether electric control system wiring is correct and reliable.

Check whether the relative position of cam and micro-switch is right; the surface of contactor is good.

Check whether electro motors and water pumps are up to requirements.

Check whether tires pressure is adequate.

(7) Check whether the worm reducer & Gear reducer add proper lubricant

2. Adjustment

Synchronous adjustment. Whether the irrigation system can normally run, it lies on the electric synchronous control system of irrigation system, the control bar drives cam, and the cam drives micro-switch, the micro-switch controls the action of contactor; the contactor controls the operation of gear motor which drives worm reducers, the worm reducers drive wheels finally to a synchronous state. Sprinkler irrigation machine runs simultaneously. The electric synchronous control system is properly mounted in factory, it only needs a comprehensive review whether its parts has loosening phenomenon during the installation.

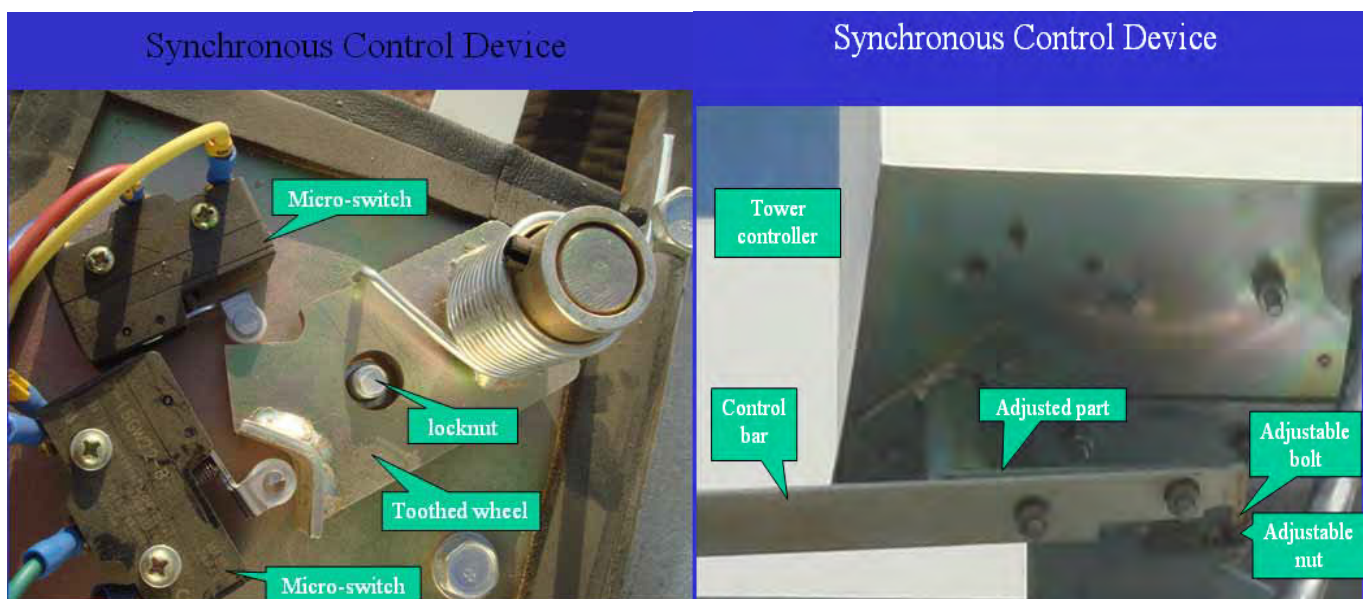


Illustration 17 Synchronous Control Device

Adjustment in two steps:

a. **Adjustment before starting up.** After finishing the installation of irrigation system, the whole lateral should be in a straight line, and then install the control bar as required. Loosen the nut of swivel shaft and position bolt.

Turn adjusting nut, make the cam close to micro-switch until the hearing "click", it indicates the switch has started working, the "open contacts" is normally closed, and then carefully reverse rotate this nut about 1-3 circles, and lock it, then fasten the nut and the position bolt. Latterly push and pull the control bar at the level, you hear the "click" of actions. If you only hear the "click" during pushing, it indicates the gap of the cam and the micro-switch is too small, you should readjust it, if you only hear the "click" during pulling, it indicates the gap of cam and micro-switches is too large, re-adjust it.

Adjust all towers as the above-mentioned methods, and then you can start the irrigation system. In the course of running, if any tower lags behind, it needs to re-adjust the synchronous control system of the tower controller. Adjustment method: Release the nut of swivel shaft (but not fully release) and nut of adjust bolt, then fasten adjusting nut, each adjustment is 1-3 circles until the tower structure runs in one line.

b. **Adjustment after sprinkling.** If any tower is not synchronized, turn off the irrigation system, re-adjust it. The adjust method are the same as the method hereinbefore mentioned. If irrigation system stops running for a long time, it should be re-adjusted before using.

c. **Adjust wheels.** The wheels need adjustment before running. Loosen the nuts (M10) of the adjusting plate and move the plate, when wheel and base beam are parallel, fasten the adjustment nut.

d. **Adjust nozzles.** After running of irrigation system, if you find some nozzles don't work normally, adjust the nozzles. If the pressure regulator or nozzle is choked, immediately clear out the blockage.

e. **Adjust the volume of water per Ha.** Adjust the time relay value according to crop's needs, which controls the speed of irrigation system to achieve appropriate rainfall.

3. Advices of Operation

a. **Process of Starting up** Start up pump, and open the water valve. To prevent water hammer, open the water valve slightly, when the pipes is filled with water, then fully open the water valve, until all nozzles normally work. Examine the water pressure, which is controlled by the water valve. Set the time relay in accordance with water requirements of field, and then select the running direction. The voltage transferred to 400-420 V. Press the "on" button. The irrigation system start to run, observe whether voltage and current are normal at the same time.

b. **Inspection during Running.** Check whether there is a normal voltage and frequency, and the water pressure of irrigation system is within the specified scope. Check whether there is a running noise of motor, whether the electric current is normal, check the lubrication situation of rotating parts. Check whether there is leakage of water or oil.

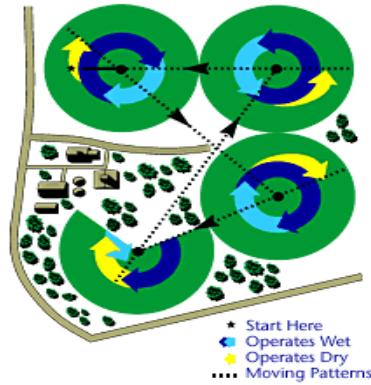
Check whether the irrigation system is in the permission of radian, and the wheels round the same track. Check whether the nozzle are normal

c. **Examination after shutting off.** Check whether water valve is closed. Check whether automatic vent valve is normal.

d. **Warning:** Working temperature should be above 4℃, the force of wind is below four scales. The operation of shutting off: firstly cut off the control box; then close the valve, stop pump and Generator. Irrigation System should be positive-reverse running by turns. Wash the pipe after fertilization. Discharge the bed load from the vent valve, ball valve and outlet for discharge sewage according to the irrigation water quality, and prevent pipeline to be blocked. Over-load Sand damages the irrigation system. Irrigation System should be reliable grounding, exposed electrical wire should be done insulation processing. Gear reducer and worm reducer should always be checked and added lubricants, lubricants maintain the center point of bearing. Tire pressure maintains sufficient force 1.2-1.5 kilograms (kg/cm²).

Traction of Center Pivot Irrigation System

In order to raise the utilization rate of center pivot irrigation system, reduce investment cost per unit area on equipment, and when the irrigation period is available, you can tug the system to irrigate more field by a tractor. See illustration 18



- (1) Preparation before traction. start center pivot system ,and control all spans to stop in a straight line ,which is the same beeline of traction. unfasten the pivot fixed pipe unfasten control bars of all tower controller, and separate the connection parts of inlet pipe & check valve, cut off power supply. jack up the beam of the system , Change the wheels from working state to traction state.
- (2) Connect the drag pole to steel wire.
- (3) Cautions . make sure the road is leveled. a slow start , a linear traction at a constant speed , the driver's view should be clear drag speed 2-4km/h. during the course of traction, one person inspect specially the whole process. Do drag the system exceed expected site.

Maintenance

Maintenance items of DYP-Centre Pivot Irrigation System are in table 2.1.

Maintenance of motor, water pumps, gear boxes and other parts, please refer to their corresponding Manuals.

Table 2.1 Maintenance of DYP-Centre Pivot Irrigation System

Maintenance items		Frequently	260 hours	Long time placement
Center Pivot Structure	1. All fasteners	*		*
	2. The firmness of bolts	*	*	*
	3. The waterproof capacity of all water pipes		*	*
	4. The lubrication		*	*
	5. Parts of control box		*	*
	6. Grounding device		*	*
Truss	1. Whether the nuts(M22) of V-Jack is fixed		*	
	2. Whether the nuts(M30)of knuckle ball is fixed		*	
	3. Whether the connection of flange has leakage phenomenon	*	*	*
	4. Whether the cable has aging phenomenon			*
	5. Whether the nozzles are normal	*	*	*
	6. Whether connect point of water pipe has leakage	*	*	*
	7. Whether the leak valve is normal.	*	*	*
Wheeled Tower	1. The firmness of connect point.		*	*
	2. Whether the tire pressure is normal (0.12Mpa-0.15Mpa)		*	*
	3. Whether the wheels are at the same track		*	*
	4. Whether the speed reducers are normal	*	*	*
	5. Replacement of the lubricant of the reducer			*

Management of overwintering or a long-time nonuse

Stop the DYP-Center Pivot Irrigation System at appropriate location Pour water out and cleaning out the sediment from the water pipes Open the Valve of inlet. Disassemble the control box, tower controllers, cable and

motors, and preserve them in storage. Lift the bottom beam up, make the wheels away from ground to 100-150 mm.

Disassemble the nozzles, pressure regulators and end gun, and preserve them in storage. Block the nuts of water pipe with bolts. Grease the moving parts and wire ropes. Put the Diesel Engine away.

Normal Malfunction and Solutions

Mechanical malfunctions are easily examined and solved, there is not statement in the table 3.1; it mainly states the electric control system malfunctions and solutions (Table 3.1).

Table 3.1 Normal Malfunction and Solution

Malfunctions	Cause	Solutions
When you turn on the power switch, the voltmeter indicates a normal voltage, but the “Stop” LED light (HR) doesn’t work.	The fuse tube FU1-2 is damaged.	Replace the fuse tube.
When You turn “Reverse-Stop-Clockwise” Switch (SAC), then turn on the “ON” button (SF). If the “Running” LCD Light (HG) doesn’t work, and the irrigation system doesn’t work too, there is a click-clack sound which are caused by the on and off power of the control box, and the ampere meter doesn’t work.	This malfunction may be caused by the “On” button (SF) or the “Stop” button (SS), Or The “Reverse-Stop-Clockwise” switch or the Relay (KA) is wrong.	Replace these buttons. Replace the relay (KA).
When You turn “Reverse-Stop-Clockwise” Switch (SAC), and turn on the “Nonstop” button or turn the periodic button (K), then turn on the “ON” button (SF). You can see the “Running” LED light (HG) works, and hear a click sound that the contactor made, but the end truss doesn’t move.	The time relay or the contactor of end truss may be wrong. The wheels of end truss skidded on the mud. The poor contacts of the End-truss’s terminal board.	Replace the time relay KT1-2. Move out the skidded wheel. Examine and repair the end-truss’s terminal board. Exchange the contactor (KM).
It stops suddenly by itself.	The angle between two connected trusses is in excess of the preset-angle; Drive motor overload; Thermal relay perform function. The mal-position of the micro-switch and the cam. The time relay or the contactor of end truss may be wrong. The wheels of end truss skidded on the mud. The poor contact of the End-truss’s terminal boards.	Examine and repair the truss by the number of “problem display” screen. Return the cam and the micro-switch to their right position. Replace the damaged time relay Move out the skidded wheel. Examine and repair the end-truss’s terminal board. Exchange the damaged contactor (KM).
The “Problem Display” screen does work Some tower controller can’t feed back the malfunction signal.	The 12V circuitry is not normal. Some tower controller has a damaged module. The module of control box is wrong.	Examine and repair the 12 V circuitry, tower controller, the module of control box.

Spare Parts and Tools

Spare parts:	amount
--------------	--------

- | | |
|---|------|
| 1. Small “V” Shape Gasket, big “V” Shape Gasket | 1, 1 |
| 2. Flexible coupler | 2 |
| 3. Collar clamp | 1 |
| 4. Alternating current contactor | 1 |
| 5. Thermal Relay | 1 |
| 6. Micro-switch | 2 |
| 7. Screw base fuse (1A) | 2 |
| 8. Screw base fuse (3A) | 2 |
| 9. Gasket ring of flange | 2 |

Tools:

- | | |
|---|-------|
| 1. Adjustable spanner (12 inch) | 1 |
| 2. Slotted screwdriver, Cross screwdriver | 1 , 1 |
| 3. Double-ended wrench | 1 |
| 4. Pliers(8 inch) | 1 |
| 5. Test pencil(500w) | 1 |
| 6. Pipe wrench | 1 |

Documents

There are three pieces of documents which are enclosed with this machine:

- | | |
|--|---|
| 1. User Manual of the DYP or SYP Series Center Irrigation Pivot System | 1 |
| 2. Warranty | 1 |
| 3. Nozzle Configure Table | 1 |

Design Sheet

When you decide to purchase the DYP- Center Pivot Irrigation System, please finish the “DYP- CENTER PIVOT IRRIGATION SYSTEM DESIGN WORKSHEET” as follow:

DYP- CENTER PIVOT IRRIGATION SYSTEM DESIGN WORKSHEET

Applicant Name: _____ Date: _____

Address: _____

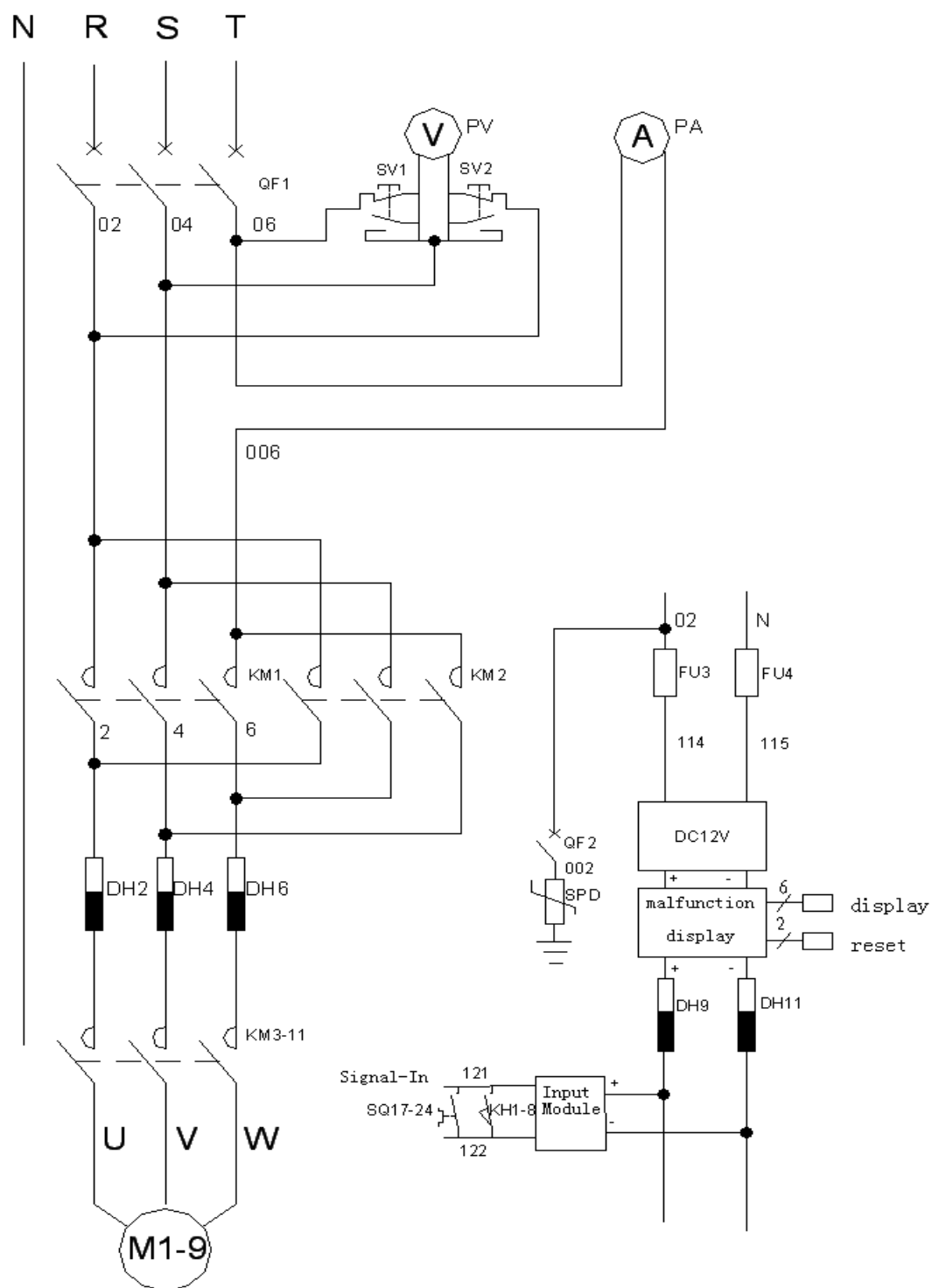
Description of Your Field 灌溉地形图	Area 面积	Shape 形状	Barrier 障碍物	Max. Height of Slope 最大破高
Estimate The Land Slope 估计地形坡度	Max. Land Slope (最大坡度) $\geq 25\%$		Average Land Slope (平均坡度) $\leq 20\%$	
	YES <input type="checkbox"/> NO <input type="checkbox"/>		YES <input type="checkbox"/> NO <input type="checkbox"/>	
Irrigated Crop 灌溉作物	Kind of Crop 作物类型		Highest Height of Crop 作物最大高度	
			(Approx.)	
Property of Soil 土壤性质	Light 轻质土 <input type="checkbox"/>	Intake Rate 渗透速度	Water holding capacity 土地蓄水能力	
	Clay 黏土 <input type="checkbox"/>			
Climate of Your Region 当地的气候	Average Rainfall (mm/year) 年平均降雨量		Normal Wind Speed and Direction 风速和常见风向	Temperature 环境温度
	Max. Rainfall 月最大降雨量 (mm/month)	Min. Rainfall 月最小降雨量 (mm/month)		
Kinds of Water 水源类型	Well (井) <input type="checkbox"/>	Hoggin 含沙量	Lowest Water Level of Dry Season 旱季最底水位	Flow Speed 水流速
	River (河) <input type="checkbox"/>			
	Lake (湖) <input type="checkbox"/>			
Power Supply 电源	V	Hz	Phase	

Please carefully fill out your information, we recommend you a DYP--Center Irrigation Pivot System that would be more suitable configure by your information.

- (1) We will analyze the climate of your region, property of soil and irrigated crop that you offer, to help you customize a suitable sprinkler.
- (2) Calculate the length of center pivot irrigation system by the area of your field.
- (3) Customize the right power equipments and pump.

Attachment 1

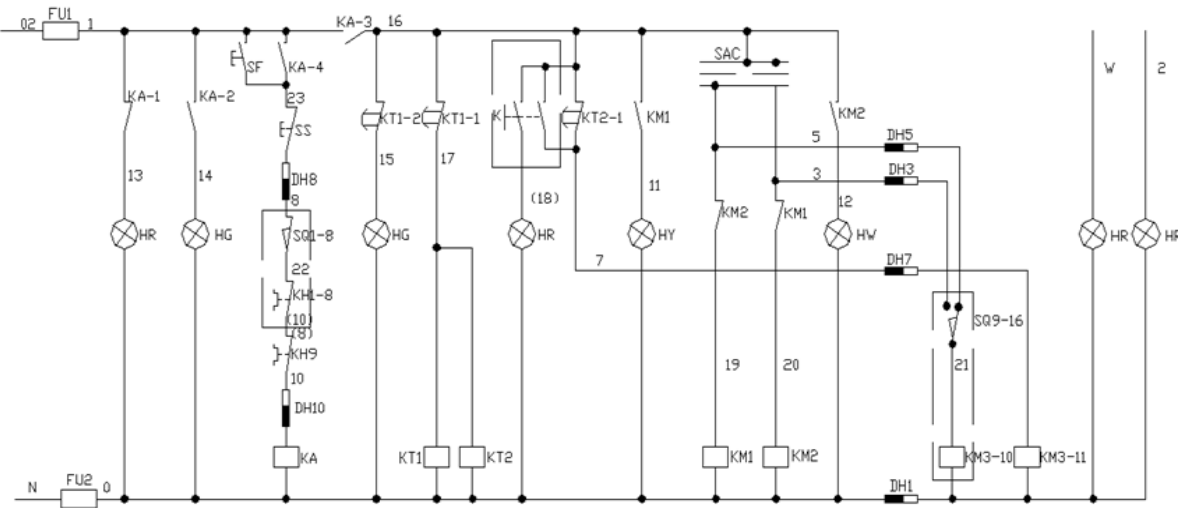
Chief Circuit Diagram



Attachment 2

Circuit Diagram of Electric Control System

“Stop”	“Run”	Run	“End Tower”	“End Tower”	“Non stop”	“End Tower”	“Clockwise”	“FW-RV”	“Reverse”	“End tower”	“End tower”	“End Tower”	“End Tower”
Indicator Light line	Indicator Light Line	Control line	Indicator light line	Control line	line	line	Indicator light line	Indicator light line	Indicator light line	Control Line	Drive Line	Indicator line	Indicator light line



R	S	T	N	2	4	6	0	3	5	8	10	+	-
3 Phase 4 Wire			Motor			Clockwise-Reverse			Protector		Malfunction Display		

Attachment 3

Instructions for malfunction alert

Control panel: It shows "-" in the normal state ,when a certain truss has gone wrong, it show that truss's address. After eliminating the malfunction, press "reset" button to clear the number. Then it shows "-".

Address Code (Jumper wire ON)

Address: 0: 2, 8

Address: 1: 1, 5

Address: 2: 2, 5

Address: 3: 3, 5

Address: 4: 1, 6

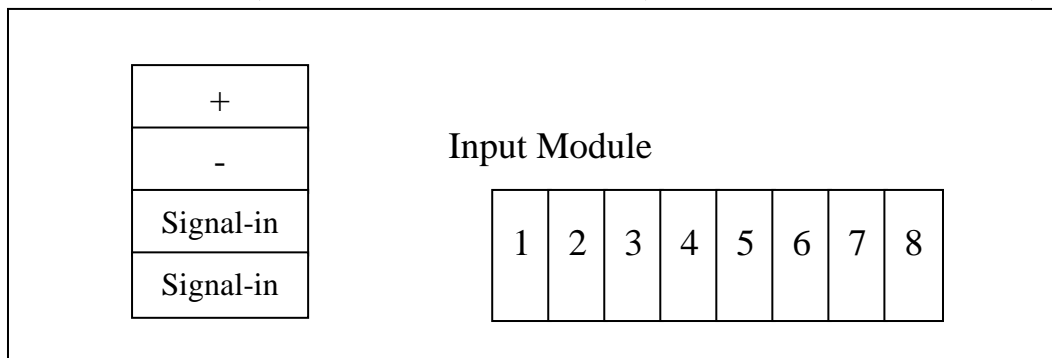
Address: 5: 2, 6

Address: 6: 3, 6

Address: 7: 1, 7

Address: 8: 2, 7

Address: 9: 3, 7



Surge Protector Device

In the operation of Surge Protector Device (SPD), it is necessary to regularly check the window of protection module, it could display the current work state: Green indicated normal working condition; Red indicated failure working state, you should immediately replace the Surge Protector Device.

* The center pivot system is continuously improved on technology & function performance, when the content of picture, word is consultable only, if there is fluctuation, according the real object please. The right of final interpretation belongs to our company.